



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,825	10/30/2003	Albert Hua Jeans	100200028-7	1876

7590            08/10/2005

HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
P. O. Box 272400  
Fort Collins, CO 80527-2400

EXAMINER

PERALTA, GINETTE

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/696,825	JEANS ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Ginette Peralta	2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 01 June 2005.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 17-20 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 17-20 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
     1. Certified copies of the priority documents have been received.  
     2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
     3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

¶

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/13/05</u> | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 17, 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beckham et al. (U. S. Pat. 4,604,644) in view of Norland Optical Adhesive and HD Microsystems.

Regarding claim 17, Beckham et al. discloses in Fig. 5 a coated semiconductor substrate that comprises a semiconductor substrate 12, and a coating that comprises an organic polymerized resin material.

Beckham et al. discloses the claimed invention including a coating material but without specifying all the constituent composition.

Regarding the photopolymer, Norland discloses on page 1, ¶¶1, 2, and 5 that the Norland Optical Adhesive 83H (NOA83H) (mercapto-ester in solution) is a liquid adhesive curable with ultraviolet light or heat, wherein the NOA83H is taught for the disclosed intended purpose of providing a coating curable to a hard film that does not become brittle, and that has a small amount of resiliency that provides strain relief from vibrations or temperature extremes.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the coating mixture of Beckham et al. a photopolymer like NOA83H for the disclosed intended purpose of providing a coating curable to a hard film that does not become brittle, and that has a small amount of resiliency that provides strain relief from vibrations or temperature extremes. Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the photopolymer of Norland with the teachings of Beckham et al. to form a coating as it would have been beneficial because it is extremely stable and will not cure before the user desires to do so.

Regarding the adhesion promoter, HD Microsystems teaches in page 1, ¶ 1, an adhesion promoter that comprises VM-652 ( $\alpha$ -amino propyltriethoxysilane in organic solution), wherein the adhesion promoter is a compound suitable as a coating material for a semiconductor wafer; wherein the adhesion promoter is taught for the disclosed intended purpose of improving the adhesion of resin coatings to semiconductor substrates when using very low concentrations of the adhesion promoter.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the adhesion promoter of HD Microsystems with the curable photopolymer of Norland and the coating of Beckham et al. for the disclosed intended purpose of HD Microsystems of improving the adhesion of the coating of Beckham et al. to the substrate, and furthermore with the improved feature of

Norland of a coating that upon hardening will not become brittle and that can be permanently set when the user so desires.

Regarding claim 19, Beckham et al. as modified by Norland and HD Microsystems above, discloses that the mixture includes VM-652 and NOA83H.

Regarding claim 20, Beckham et al. as modified by Norland and HD Microsystems above, discloses a coating mixture applied to a semiconductor substrate; regarding the limitation of the coating mixture being applied using spin coating, the method of forming a device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

3. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beckham et al. in view of Norland and HD Microsystems as applied to claims 17, 19-20 above, and further in view of Burns et al. (U. S. Pat. 5,742,075).

Beckham et al., as modified by Norland and HD Microsystems above, discloses the claimed invention with the exception of the semiconductor substrate comprising a flexible amorphous silicon coated web.

Burns et al. discloses in col. 1, lines 17-29, that amorphous silicon semiconductors when fabricated on flexible substrates have the advantage of using a number of different kinds of substrates unlike the crystalline semiconductor substrate; and the non-crystalline properties of the amorphous silicon semiconductors present the opportunity for forming very large scale devices, since the devices will not be limited

by the crystal and die size limitations normally associated with crystalline semiconductors.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a flexible amorphous silicon coated flexible material, as the semiconductor substrate, for the disclosed intended purpose and the advantage of using a number of different kinds of substrates unlike the crystalline semiconductor substrate; and the non-crystalline properties of the amorphous silicon semiconductors present the opportunity for forming very large scale devices, since the devices will not be limited by the crystal and die size limitations normally associated with crystalline semiconductors.

*Response to Arguments*

4. Applicant's arguments filed 6/1/05 have been fully considered but they are not persuasive.

Regarding applicant's argument that none of the cited documents teach or suggest that a mixture of a photopolymer and an adhesion promoter such as VM-652 is a suitable alternative to Beckham's et al. mixture of a resin material and an adhesion promoter, it is noted that Beckham et al. is modified by both Norland and HD Microsystems for the purpose of improving the material of Beckham et al. on a semiconductor substrate as disclosed by both Norland and HD Microsystems with the benefits of a photopolymer like NOA83H that provides a coating curable to a hard film that does not become brittle, and that has a small amount of resiliency that provides

strain relief from vibrations or temperature extremes, that in addition is extremely stable and will not cure before the user desires to do so; and to use an adhesion promoter that comprises VM-652, wherein the adhesion promoter is a compound suitable as a coating material for a semiconductor wafer for improving the adhesion of resin coatings to semiconductor substrates when using very low concentrations of the adhesion promoter.

Furthermore those additives have been shown to be used in semiconductor substrate coatings, and Beckham et al. teaches the an adhesion promoter among other things should be added to the resin material.

*Conclusion*

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

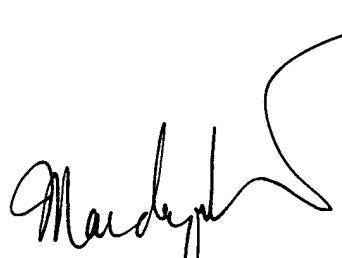
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ginette Peralta whose telephone number is (571) 272-1713. The examiner can normally be reached on Monday to Friday 8:00 AM- 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GP



ANH D. MAI  
PRIMARY EXAMINER